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Preparing for the Year 2000: Waste Management and Y2K

Computer programs and microchips have traditionally been designed to display date code as the last two digits of the year, e.g., 98 instead of 1998. Originally welcomed as a cost- and space-saving feature, this programming step may trigger a broad range of problems as we enter the next century. Many computers (and microchip-controlled devices) will consider the year 2000 (or 00) as the year 1900 while others may not be able to switch from 99 to 00 at all.

To date, there has been a tremendous amount of discussion about Year 2000 (or Y2K) problems associated with banking, utilities, defense systems, and manufacturing; however, relatively little public discourse has focused on systems designed to protect the environment. The waste management industries, generators, treaters, and recyclers are as vulnerable to Y2K disruptions as any—with disruptions that could have far-reaching effects. There are, however, steps that you can take now to mitigate these effects.

Recognizing the potential problem and assessing its impacts are essential to ensuring that your waste management system remains protective of human health and the environment into the next century.

Before checking specific components of your system for Y2K readiness, take time to plan your assessment. Suggested steps include the following:

1 **Identify a staff member or a committee of staff members to take charge of the assessment.** Your technical support staff are ideal candidates, as well as employees who originally installed or implemented components of your system.

2 **Inventory components of your system that could be vulnerable to Y2K disruption.** Equipment may include automated process control systems, tracking software, or monitoring equipment run by embedded computer chips. If your equipment was purchased or upgraded recently, it may be Y2K compliant. Check with your supplier, installer, or equipment manufacturer.

3 **Prioritize the risks to your business of each potential threat.** What are the financial and other costs if you don't correct the problem?

4 **Repair, modify, or replace each threatened item.** Based on priorities you identified in Step 3, begin a systematic process of correcting problem areas.

5 **Conduct a test of Y2K-amended items that are deemed critical to environmentally safe operations.** If feasible, conduct your test as a simulation or on a very small scale to avoid major upsets of current operations, e.g., large releases of waste to the environment if the test fails.

6 **Prepare a site contingency plan to anticipate and manage disruptions.** Maintain hard copy plans for each automated system should a failure occur or install manual overrides of safety and environmental control systems. Look particularly at those problems you think have not been resolved.

✓ What Are Potential Problem Areas?

Waste management equipment at your site that may be threatened by Y2K disruption includes computer-controlled or microchip-controlled systems. Check the following equipment at your site for Y2K problems:

- ❑ Security systems
- ❑ Safety shutdown systems (e.g., automated freeboard control)
- ❑ Automated leak detection devices
- ❑ Groundwater monitoring (e.g., data transmission to permitting facility)
- ❑ Laboratory analytical equipment
- ❑ Software used in automated reporting
- ❑ Recordkeeping, reporting, and tracking systems
- ❑ Waste treatment operating equipment
- ❑ Electronically controlled valves
- ❑ Emissions monitoring equipment and control devices (e.g., continuous emission monitors)
- ❑ Landfill gas flares.

In addition, the Y2K readiness of business associates must be considered. When planning your evaluation, consider the following:

- ❑ Those companies whose waste you manage (generators) or who manage your waste
- ❑ Vendors and suppliers (e.g., lab supplies, containers, or computer software)
- ❑ Waste transporters (to and from site)
- ❑ Loading and distribution systems (fleet management, route management, collection, and scales)
- ❑ External financial and insurance programs (e.g., financial assurance data)
- ❑ Communications providers
- ❑ Utilities systems (electricity, natural gas, water, sewage, grid stats, etc.).

Real Solutions

Even though most waste management systems employ monitoring and control systems that are not date-related, it's important to validate this fact to maintain the public's confidence in your company's ability to protect human health and the environment. Mission-critical systems can reach beyond the realm of internal business operations, as illustrated by the following real-life examples.

- The operating system of a recycling facility shut down when the software program that it used to regulate temperature control did not recognize the 366th day of a leap year. On New Year's Eve, 1996, 660 process control computers ceased to operate on the stroke of midnight. The system had to be operated manually until the source of the problem was located, during which time equipment was damaged from overheating. The damaged equipment had to be replaced at a cost of more than $1 million. Although this is a "leap year" failure, it is a dramatic demonstration of the sort of problem that could occur if computer programs fail to recognize the year 2000.
- A waste treatment facility performed a five-site sample assessment that revealed date-sensitive equipment such as incinerator control systems, lab testing equipment, gas chromatographs, alarm systems, and utilities. As a result of this finding, this facility has instituted a combination of centralized program management and local site management of Y2K assessments to ensure uninterrupted operations when the Year 2000 arrives.

Need More Information?

You can learn much from how others are addressing the Y2K problem. Visit the following web sites for up-to-date information on Y2K and industry:

- U.S. Environmental Protection Agency ***www.epa.gov/year2000***
- U.S. Small Business Administration's Year 2000 Issues Hotlist ***www.sba.gov/hotlist/year2000.html*** (contains links to numerous state and private web sites on Y2K policies and issues)
- National Institute of Standards and Technology's Year 2000 web site. ***www.nist.gov/y2k/*** (contains the Manufacturing Extension Partnership's Year 2000 Compliance Self-Assessment Checklist)
- Year 2000 Information Center ***www.year2000.com***

If you have information you'd like to share with us on how you plan to debug the Y2K problem, please contact the RCRA Hotline at (800) 424-9346 or TDD-800-553-7672. In the Washington, DC, area, call 703-412-9810.